FIG.1

RESPONDENT COMPUTER 111 · · · · · · RESPONDENT COMPUTER 11N

NETWORK ~12

DATABASE ~13

14

TEXT CLASSIFICATION ENGINE

15 MORPHEME ANALYSIS MEANS

16 TEXT-CATEGORY DESIGNATING MEANS

17 ATTRIBUTE SELECTING MEANS

18 RULE LEARNING MEANS
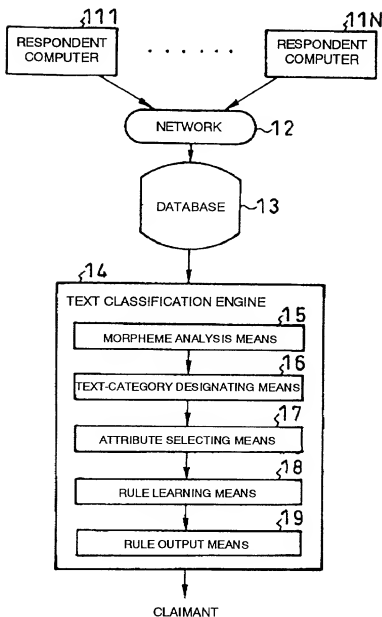
19 RULE OUTPUT MEANS

CLAIMANT

FIG.2

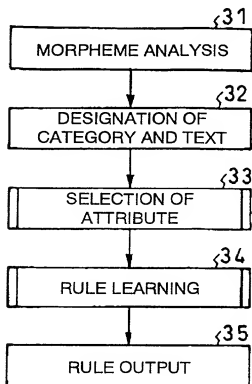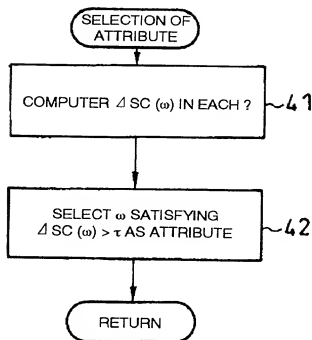| INQUIRY RESPONDENT	WHICH DO YOU ASSUME AS HIGH-TECH ENTERPRISE?	WHAT'S HIGH-TECH FOR YOU?	WHAT DO YOU ASSUME AS HIGH-TECH PRODUCT?	.....
1	COMPANY A	ADVANCED AND FUTURISTIC MACHINE	ROBOT	.....
2	COMPANY C	EASY AND FRIENDLY MACHINE	CELL PHONE	.....
3	COMPANY A	HIGH SPEED AND HIGH PERFORMANCE MACHINE	PERSONAL COMPUTER	.....
.....	.....	.....	.....	.....

FIG.3

MORPHEME ANALYSIS — 31

DESIGNATION OF CATEGORY AND TEXT — 32

SELECTION OF ATTRIBUTE — 33

RULE LEARNING — 34

RULE OUTPUT — 35

FIG.4

SELECTION OF ATTRIBUTE

COMPUTER Δ SC (ω) IN EACH ? — 41

SELECT ω SATISFYING Δ SC (ω) > τ AS ATTRIBUTE — 42

RETURN

FIG.5

$$\left(\begin{array}{c}\text{RULE}\\\text{LEARNING}\end{array}\right)$$

↓ $\nearrow$ **51**

DATA FORMING

↓ $\nearrow$ **52**

GROWING

INITIALIZATION:
$A = \phi$
D = WHOLE DATA SET
T = SET OF k TERMS

$D \neq \phi$ AS FOLLOWS UNLESS

- DETERMINE $t = t^*$ TO MAXIMIZE ΔESC (t)
- TO A, ADD CONDITION SENTENCE "$C = 1 \leftarrow t^*$ (PROBABILITY P)",

  WHERE $p = \dfrac{m_L\,{}^* + 0.5}{m_1 + L}$
- $D: = D - \{$DATA RENDERING t^* TRUE$\}$
- $T: = T - \{t^*\}$

↓ $\nearrow$ **53**

PRUNING

INITIALIZATION:
A = OUTPUT OF (GROWTH)

DO AS FOLLOWS AS FAR AS THERE IS RULE OF A
$A': =$ SUPPOSING LAST RULE OF A IS CLIPPED, IF
ESC ($C'''|A$) - ESC ($C'''|A'$)
$\geq \lambda^*$ (L (A') - L (A))
THEN LEAVE A AS IT IS, AND GET OUT OF LOOP.
OTHERWISE, $A: = A'$

↓

$$\left(\text{RETURN}\right)$$

FIG.6

COMPANY A	←	EASY TO USE	[92.0%]
COMPANY A	←	FUTURE & PRIVATE	[87.2%]
COMPANY A	←	FATIGUE & RELIEF	[78.0%]
COMPANY A	←	EASY	[65.8%]
COMPANY A	←	PLEASANT	[56.2%]
OTHER THAN COMPANY A	←	OR ELSE	[79.4%]

FIG.7

COMPANY B	←	QUICK	[82.0%]
COMPANY B	←	MACHINE & EFFICIENCY	[77.8%]
COMPANY B	←	MACHINE & MANIPULATION	[76.0%]
COMPANY B	←	CLEVER	[60.8%]
COMPANY B	←	EXCELLENT	[60.2%]
OTHER THAN COMPANY B	←	OR ELSE	[76.4%]

FIG.8

QUESTIONNAIRE REPLY INPUT MEANS ~81

DATABASE ~82

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TEXT CLASSIFICATION ENGINE 15

MORPHEME ANALYSIS MEANS

TEXT-CATEGORY DESIGNATING MEANS 16

ATTRIBUTE SELECTING MEANS 17

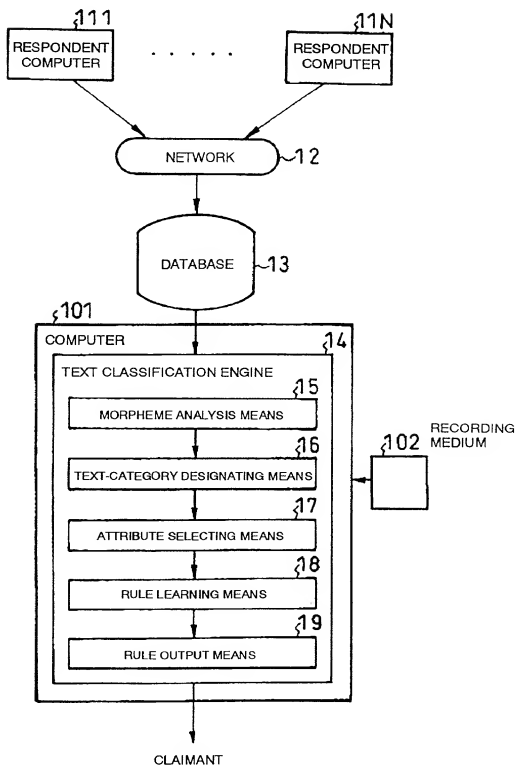RULE LEARNING MEANS 18
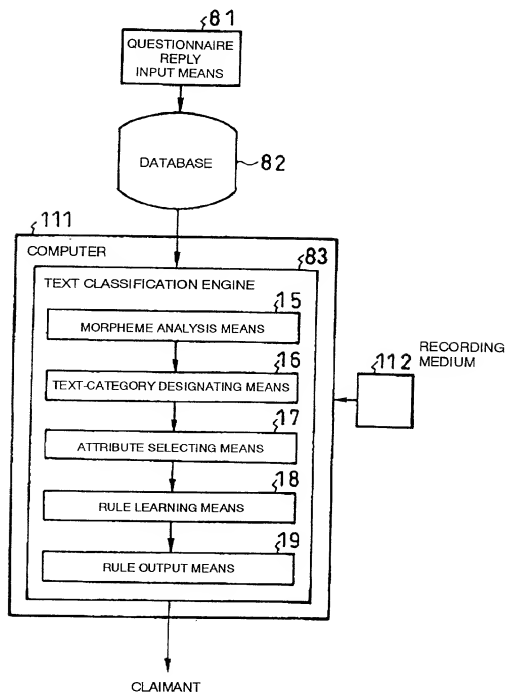
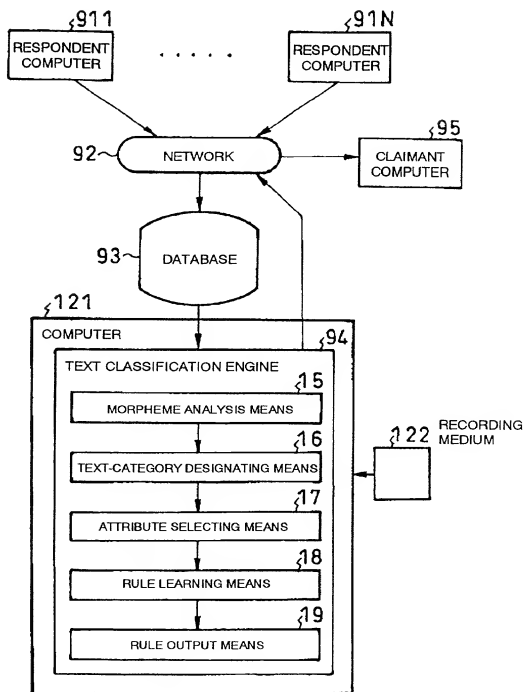RULE OUTPUT MEANS 19

CLAIMANT
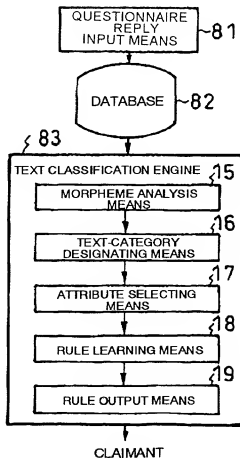
FIG.9
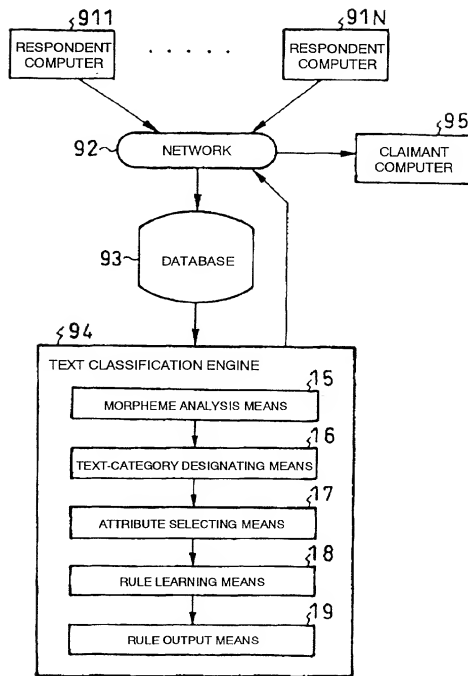
FIG.10

FIG.11

FIG.12

FIG. 13A

$$SC(c^m) = mH\left(\frac{m^+}{m}\right) + \frac{1}{2}\log\frac{m}{2\pi} + \log\pi \tag{1}$$

FIG. 13B

$$H(z) \overset{def}{=} -z\log z - (1-z)\log(1-z) \tag{2}$$

FIG. 13C

$$SC(c^{m_\omega}) = m_\omega H\left(\frac{m_\omega^+}{m_\omega}\right) + \frac{1}{2}\log\frac{m_\omega}{2\pi} + \log\pi \tag{3}$$

FIG. 13D

$$SC(c^{m_{\neg\omega}}) = m_{\neg\omega} H\left(\frac{m_{\neg\omega}^+}{m_{\neg\omega}}\right) + \frac{1}{2}\log\frac{m_{\neg\omega}}{2\pi} + \log\pi \tag{4}$$

FIG. 13E

$$\Delta SC(\omega) = \frac{1}{m}\left(SC(c^m) - (SC(c^{m_\omega}) + SC(c^{m_{\neg\omega}}))\right)$$

$$= \left[H\left(\frac{m^+}{m}\right) - \frac{m_\omega}{m}H\left(\frac{m_\omega^+}{m_\omega}\right) - \frac{m_{\neg\omega}}{m}H\left(\frac{m_{\neg\omega}^+}{m_{\neg\omega}}\right)\right]$$

$$- \left[\frac{1}{2m}\log\frac{m_\omega m_{\neg\omega}\pi}{2m}\right] \tag{5}$$

FIG. 13F

$$ESC\,(c^m) = Loss\,(c^m) + \lambda\sqrt{m\log m} \tag{6}$$

FIG. 13G

$$ESC\,(c^{m_t}) = Loss\,(c^{m_t}) + \lambda\sqrt{m_t\log m_t} \tag{7}$$

FIG. 13H

$$ESC\,(c^{m_{\neg t}}) = Loss\,(c^{m_{\neg t}}) + \lambda\sqrt{m_{\neg t}\log m_{\neg t}} \tag{8}$$

FIG. 13 I

$$\begin{aligned}
\Delta ESC\,(t) &= ESC\,(c^m) - (ESC\,(c^{m_t}) + ESC\,(c^{m_{\neg t}})) \\
&= \left[Loss\,(c^m) - Loos\,(c^{m_t}) - Loos\,(c^{m_{\neg t}})\right] \\
&\quad + \left[\lambda(\sqrt{m\log m} - \sqrt{m_t\log m_t} - \sqrt{m_{\neg t}\log m_{\neg t}})\right]
\end{aligned} \tag{9}$$

FIG. 13J

$$(m_{t^*}{}^+ + 0.5)/(m_{t^*} + 1) \tag{10}$$

FIG. 13K

$$ESC\,(c^m|A) = \sum_t ESC\,(c^{m_t}) \tag{11}$$

FIG. 13L

$$\begin{aligned}
ESC\,(c^m : A) &= ESC\,(c^m|A) + \lambda' L(A) \\
&= \sum_t Loss\,(c^{m_t}) + \lambda\sum_t\sqrt{m_t\log m_t} + \lambda' L(A)
\end{aligned} \tag{12}$$